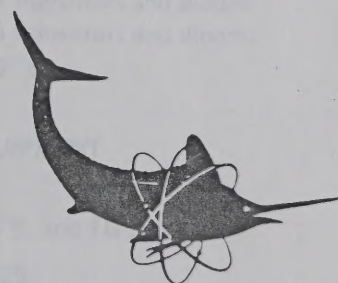
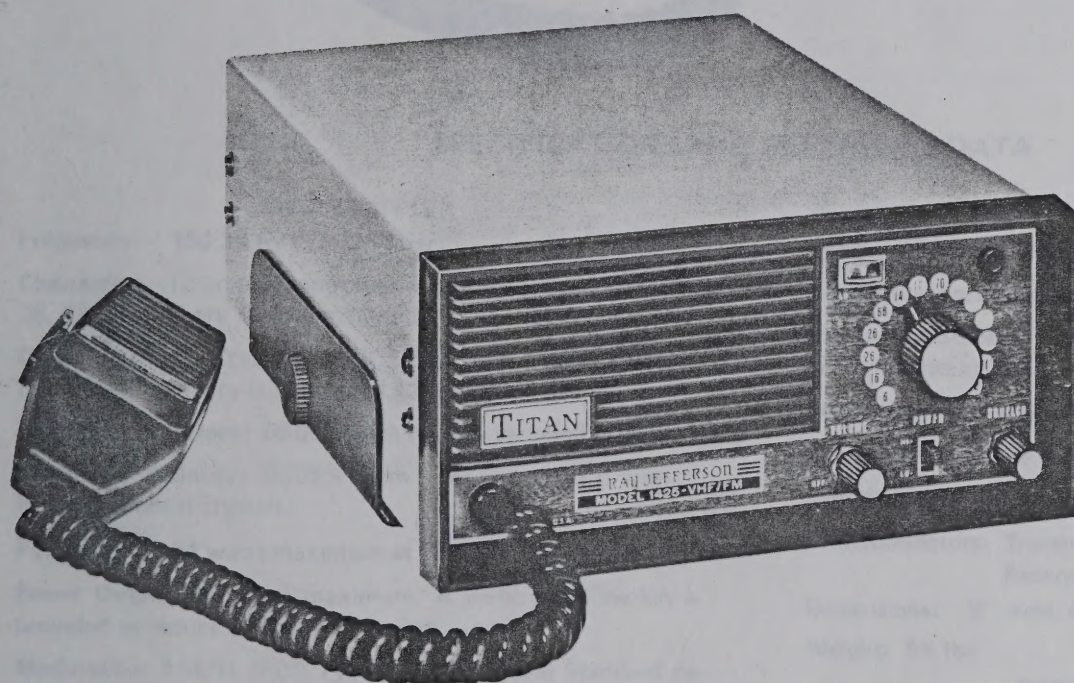


# MARINE RADIO TELEPHONE MODEL 1425 "TITAN" VHF/FM

NOTE: Licensed Technician not required for installation provided that antenna used is Model FG-3, FG-6, FG-9 or FG-21 as supplied by RAY JEFFERSON and that factory pretuning is not changed.

CH 25  
27



## INSTRUCTION HANDBOOK

**PRICE  
FIVE DOLLARS**

### RAY JEFFERSON

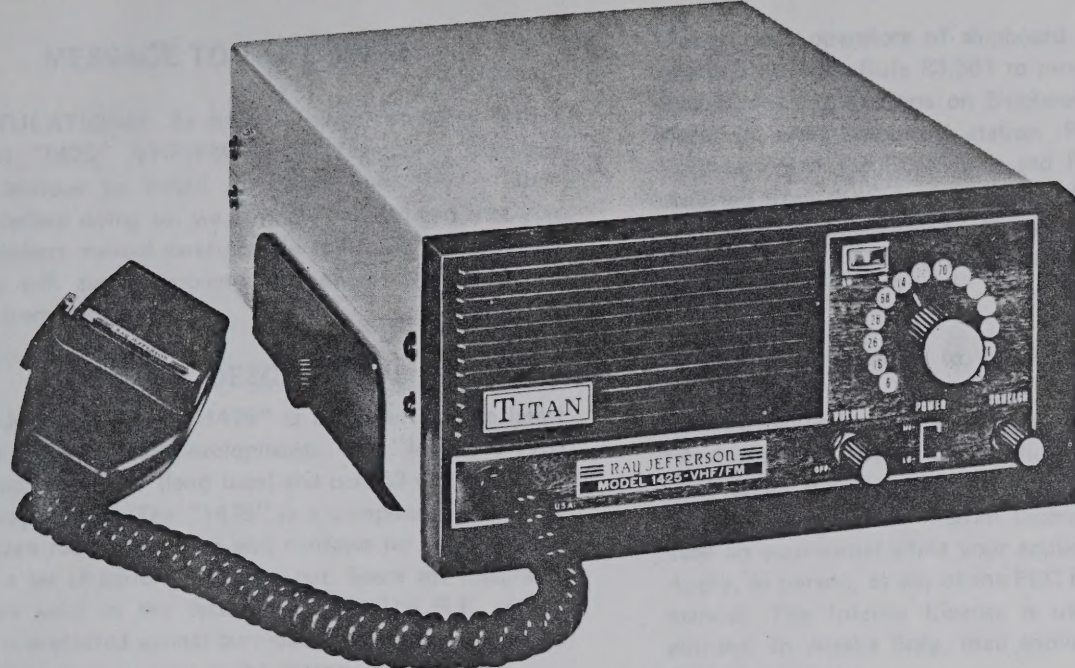
PHILADELPHIA, PENNSYLVANIA

DIVISION OF JETRONIC INDUSTRIES, INC.









## SPECIFICATIONS AND REFERENCE DATA

### TRANSMITTER

**Frequency** — 156.30 to 157.425 MHz

**Channels** — 12 crystal controlled. Channels 6, 16, 14, 22, 26, 28, 68, and 70 are factory installed.

**Crystal Control**: Crystals are HC 25/U type — 32pf transmitter crystal frequency is multiplied 12 times.

**Frequency Accuracy**: .0005% with factory installed crystals.

**Frequency Stability**: .0005% from  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  with factory installed crystals.

**Power Input**: 54 watts maximum at 13.5 volts DC.

**Power Output**: 25 watts maximum. A front panel switch is provided to reduce power to one watt.

**Modulation**:  $\pm 5\text{kHz}$  (FCC Type 16F3 emission) Standard de-emphasis curve within +1db to -3db from the required 6db per octave curve covering 300-3000 Hz. A post limiter filter is employed.

**Deviation Limiter**: Automatic restriction of deviation to  $\pm 5\text{kHz}$ .

**Microphone**: Hand held reluctance type.

**Hum and Noise Level**: 50db below modulation level.

**Spurious and Harmonic Attenuation**: -65db.

**Antenna Connector**: VHF type S0239 — 50 ohms.

### RECEIVER

14 channel double conversion superheterodyne with crystal controlled oscillator and crystal filter. Double tuned RF stage and mixer, 10.7MHz IF, 455kHz limiters with discriminator detection.

**Channels** — 6, 16, 14, 22, 26, 68, 70, W-1 and W-2 are factory installed.

**Frequency Range**: 156.30 to 162.55 MHz.

**Frequency Accuracy**: .001% with factory installed crystals.

**Frequency Stability**: .001% from  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  with factory installed crystals.

**Sensitivity**:  $.5\mu\text{V}$  or less for 20db quieting.

**Selectivity**: -6db @  $\pm 7.5\text{kHz}$ , -80db @  $\pm 15\text{kHz}$ .

**Audio Output**: 4 watts maximum Class B output.

**Semiconductors**: Transmitter — 28 transistors and diodes.  
Receiver — 44 transistors and diodes.

**Dimensions**: 9" wide, 4" high, 12" deep.

**Weight**: 5 1/4 lbs.

### OPTIONAL EQUIPMENT

**Remote Speaker**: Model RS-109

**Antenna**: Models FG-3, FG-6, FG-9, and FG-21.

### ACCESSORIES

**Power Cord**: 6 foot with molded connector (color coded).

**Fuse**: An 8 amp fuse is inside unit (top).

**Mounting**: Universal mounting bracket supplied.

### Power Requirements:

**Supply Voltage**: 12 Volts DC — Negative Ground Only

**Current Drain**: Transmitter — Low Power 1 Amp  
— High Power 4.7 Amps

Receiver — Squelched 0.3 Amps  
— Full Power 1.25 Amps  
at 4 Watts Audio





## MESSAGE TO THE OWNER

**CONGRATULATIONS!** As the new owner of a Ray Jefferson Model "1425" VHF/FM Radio Telephone, you are probably anxious to install it aboard and "try it out." However, before doing so, we strongly recommend that you read this owners manual carefully. By following these instructions, you will avoid problems and obtain the maximum efficiency from your unit.

### GENERAL DESCRIPTION

The Ray Jefferson Model "1425" is the result of the latest space age research and development. The "1425" is type accepted under part 81 (land base) and part 83 (shipboard) of the FCC regulations. The "1425" is a completely solid state transistorized radio telephone and contains no tubes to heat up, draw a lot of current and burn out. Space age integrated circuits are used in the receiver station. The R.F. output transistor is protected against burn-out which can be caused by an inadvertent short or open in the antenna.

The Ray Jefferson Model "1425" factory pre-tuned package is ideal for do-it-yourselfer. Channel 6, 16, 14, 22, 26, 28, 68, 70 W-1 & W-2 are pretuned and sealed at the factory. There is no need for the services of a licensed FCC technician when installing the unit as factory supplied. Simply connect the antenna and wire the set to the 12 Volt supply and you're "on the air."

**NOTE:** If other crystals are added. All transmitter adjustments must be made by a person holding a minimum of a second class radiotelephone license in accordance with FCC regulations, part 8.

**IMPORTANT:** The following must be performed if the antenna used is not factory supplied: a holder of a first or second class FCC license must measure and log frequency, deviation, and power output on page 14.

The "1425" is a 12 channel transmit, 14 channel receive VHF (very high frequency) Radio Telephone using FM (frequency modulation). The "1425" is designed specifically for use in the 156 to 162 MHz band.

### GENERAL INFORMATION

### RULES AND REQUIREMENTS

Many classes of vessels are not required by law to be equipped with radio-telephone installations. However, all radio stations aboard ships must be licensed by the Federal Communications Commission. A ship's station license is issued only by the FCC Main Office which is located in Washington, D.C. Application for a ship's station license must be made on FCC Form No. 502 which is available from any of the FCC Field Offices listed in this handbook.

Owners and operators of shipboard radio stations are also required by FCC Rule 83.367 to provide Part 83 (Rules and Regulations for Stations on Shipboard in the Maritime Services) in every shipboard station. Part 83 is contained in Volume IV of the FCC Rules and Regulations and may be obtained from the Superintendent of Documents, Washington, D.C. 20402. Applications for license should be mailed with the fee to FEDERAL COMMUNICATIONS COMMISSION, GETTYSBURG, PA. 17325.

All questions pertaining to Vessel information and Applicant information should be answered completely. Several weeks may be required to process your application and the radio-telephone may not be used until a license is posted aboard your vessel, however, an "Interim Ship Station License" can be issued to you. An Interim License may be obtained and used on your vessel while your application is being processed. Apply, in person, at any of the FCC Field Offices listed in this manual. The Interim License is usable for a period of 6 months. In Alaska only, mail application to the FCC Field Office in Anchorage.

A change of boat name no longer requires an application for modification of a radio station license. Such a change can now be legally covered by a letter to the FCC. The letter should contain the ship station call sign, the old boat name, and the new boat name and the name and address of the licensee. If the vessel is registered, also include the official registration number.

When your Ship Station License is due for renewal, the FCC will notify you prior to the expiration date on FCC Form 405-B. A portion of this Form 405-B must be completed and mailed back to the FCC, Gettysburg, Pa., accompanied by the renewal fee.

### ORDER FORM

TO: Superintendent of Documents  
Government Printing Office  
Washington, D. C. 20402

Please enter \_\_\_\_\_ subscription(s) to Volume IV, containing Parts 81, 83 and 85 of the Federal Communications Commission Rules and Regulations. Make checks or money orders payable to the Superintendent of Documents.

Name \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_







The Ship's Station Operator must also have an Operator's License. This license is obtained from the FCC Field Office. Application must be made on FCC Form 753.

The licensee is responsible at all times for the lawful and proper operation of his station. Licenses are granted only to United States citizens. The license is granted primarily for safety of life and property; therefore, distress and safety communications must have absolute priority. Secondly, however, certain frequencies, which are not reserved for safety or distress calls, may be used for radio-telephone calls to coast stations or between ships. The local telephone company or radio-telephone coast station can furnish the radio-telephone frequencies and the charges for radio-telephone service.

### FCC FIELD OFFICES

Boston, Massachusetts 02109, 1600 Customhouse  
New York, New York 10014, 748 Federal Building,  
641 Washington Street  
Philadelphia, Pennsylvania 19106, 1005 U.S.  
Customhouse  
Baltimore, Maryland 21201, 819 Federal Bldg.,  
31 Hopkins Plaza  
Norfolk, Virginia 23502, Military Circle  
807 North Military Highway  
Atlanta, Georgia 30303, 1602 Gaslight Tower,  
235 Peachtree St. N.E.  
Savannah, Georgia 31402, 238 Post Office Building,  
P.O. Box 8004  
Miami, Florida 33130, Room 919, 51 S.W. First Avenue  
Tampa, Florida 33602, 738 Federal Office Building,  
500 Zack Street  
New Orleans, Louisiana 70130, 829 Federal Office  
Building, 600 South Street  
Mobile, Alabama 36602, 439 U.S. Courthouse and  
Customhouse  
Houston, Texas 77002, New Federal Office Building  
515 Rusk Avenue, Room 5636  
Beaumont, Texas 77701, 323 Federal Building, 300  
Willow St.  
Dallas, Texas 75202, Room 13E7 New Federal Court  
House and Office Bldg. 1100 Commerce Street  
Los Angeles, Calif. 90012, Room 1758, U.S.  
Courthouse, 312 North Spring St.

San Diego, Calif. 92101, Fox Theatre Bldg.  
1245 - 7th Avenue  
San Francisco, Calif. 94111, 323 - A  
Customhouse, 555 Battery Street  
Portland, Oregon 97204, 314 Multnomah Bldg.  
319 S.W. Pine Street  
Seattle, Washington 98104, 8012 Federal Office  
Building, 1st Avenue and Marion Street  
Denver, Colorado 80202, 504 New Customhouse,  
19th between Calif. & Stout Sts.  
St. Paul, Minnesota 55101, 691 Federal Bldg. &  
U.S. Courthouse, 4th & Robert St.  
Kansas City, Missouri 64106, 1703 Federal Building,  
601 E. 12th Street  
Chicago, Illinois 60604, 1872 Everett McKinley Dirksen  
Bldg., 219 South Dearborn St.  
Detroit, Michigan 48226, 1054 New Federal Building  
Wash. Blvd. & Lafayette St.  
Buffalo, New York 14202, 905 Federal Building,  
111 West Huron St.  
Honolulu, Hawaii 96808, 502 Federal Building,  
P.O. Box 1021  
San Juan, Puerto Rico 00903, 322-323 Federal Bldg.,  
P.O. Box 2987  
Anchorage, Alaska 99510, Room G-63 U.S. Post Office  
& Courthouse Bldg. 4th & G St., P.O. Box 644  
Washington, D.C. 20554, Room 216, 1919 N St. N.W.

### OPERATOR LICENSE

The radio-telephone transmitter in a ship station **may** be operated only by a licensed radio operator. The licensed operator may permit others to speak over the microphone if he starts, supervises, and ends the operation, makes the necessary log entries, and gives the necessary identification. The license usually held by radio operators aboard small vessels not required to carry a radio installation for safety purposes is the Restricted Radio Telephone Operator Permit. This lifetime permit may be obtained without examination by United States citizens in person or by mail from any Commission Field Office upon proper completion of FCC Form 753A. This permit does not authorize transmitter adjustments that may affect the proper operation of the station. Any needed adjustments must be made only by the holder of a first or second class radio-telegraph or radio-telephone license. It is not necessary to post the Restricted Radio Telephone Operator Permit if it is kept on the operator's person; however, other classes of licenses must be conspicuously posted at the principal location at which the station is operated. (Rule 83.156).

### TRANSMITTERS

Each ship radio-telephone transmitter requested to be licensed in a new or renewal license under Part 83 of the Commission's Rules for operation must be type accepted under Part 83.







## GOVERNMENT AND FOREIGN FREQUENCIES

A ship may transmit on frequencies not included on the ship station license when directed to do so by U.S. Government stations or foreign coast stations. (Rules 83.357 and 83.363).

## PREVENTION OF INTERFERENCE

Always listen on the channel to be used before transmitting so that you will not interfere with others already using the channel. (Rule 83.181 [b] ).

## OPERATING PROCEDURES

You must give your call sign whenever you call another vessel or coast station and when you finish the conversation. Except when talking on the intership frequencies where the maximum time limit for a conversation is 3 minutes, you must break and announce your call sign if your ship-shore conversation lasts longer than 15 minutes. (Rules 83.364 and 83.366[g] ). Make your calls short (not more than 30 seconds) and do not call that station again for 2 minutes. (Rule 83.366[f] ).

## SAFETY AND DISTRESS

Never forget that SAFETY is the primary reason for having shipboard radio. DISTRESS AND SAFETY must have ABSOLUTE PRIORITY. That is why you must listen, and be able to transmit, on 156.8 MHz. The distress call is "MAY-DAY." Read Rule 83.233 (b) and the other rules in Subpart J of Part 83 for complete information about distress calls and messages. If a call to the Coast Guard is needed they may be raised on channel 16 (156.8 MHz).

## RADIO CONVERSATIONS ARE PRIVATE

If you hear a radio conversation not intended for you, you cannot lawfully use the information in any way. (Rule 83.174).

## VIOLATION NOTICES

If you receive an "Official Notice of Violation" from the FCC you must reply to it within ten days receipt. If you cannot give a full answer that soon, you should acknowledge it and say that you will make a full answer as soon as possible. (If you are away from your permanent mailing address, it is suggested that you make arrangements to have mail from the FCC opened, acknowledged and forwarded.)

## LOGS

A radio log is required; each page must be numbered, must have the name of the vessel, call sign, and must be signed by the operator. This log is found on page 14-15. Entries shall be made showing the time of beginning and ending each watch

on 156.8 MHz. All distress and alarm signals and related communications transmitted or intercepted, and all urgency and safety signals and related communications transmitted, shall be recorded in the log as completely as possible.

A record of all installations, service, or maintenance work performed, which may affect the proper operation of the station, must also be entered by the licensed operator doing the work, including his signature, address and the class, serial number and expiration date of his license. The 24 hour system is used in a radio log, that is 8:45 a.m. is written as 0845 and 1:00 p.m. becomes 1300. (Rule 83.368.)

Radio logs must be retained for at least a year; for three years if they contain entries concerning distress or disaster; and longer periods if they concern communications being investigated by the FCC, or against which claims or complaints have been filed. (Rule 83.115).

Any FCC Field Engineering Office will be glad to help you and give you any further information.

## UNPACKING AND INSPECTION

Immediately upon receiving your radio-telephone, carefully unpack the contents and examine them thoroughly outside and inside for damage that may have occurred during transportation due to rough or improper handling. Report any damage immediately to the transportation company or to your authorized Ray Jefferson dealer before disposing of the packaging materials.

## INSTALLATION

The location of the equipment aboard the boat should be chosen with the following in mind:

1. Convenience of operation.
2. Protected location (from salt spray and weather).
3. Antenna should be mounted as high on the boat as practical for greatest range. It should preferably be the highest object on the boat.

The Ray Jefferson VHF gain antenna should be used for best performance. It is connected to the set by means of a 50 ohm coaxial cable using a UHF plug. A perko #424 cable outlet should be used for a watertight entry.

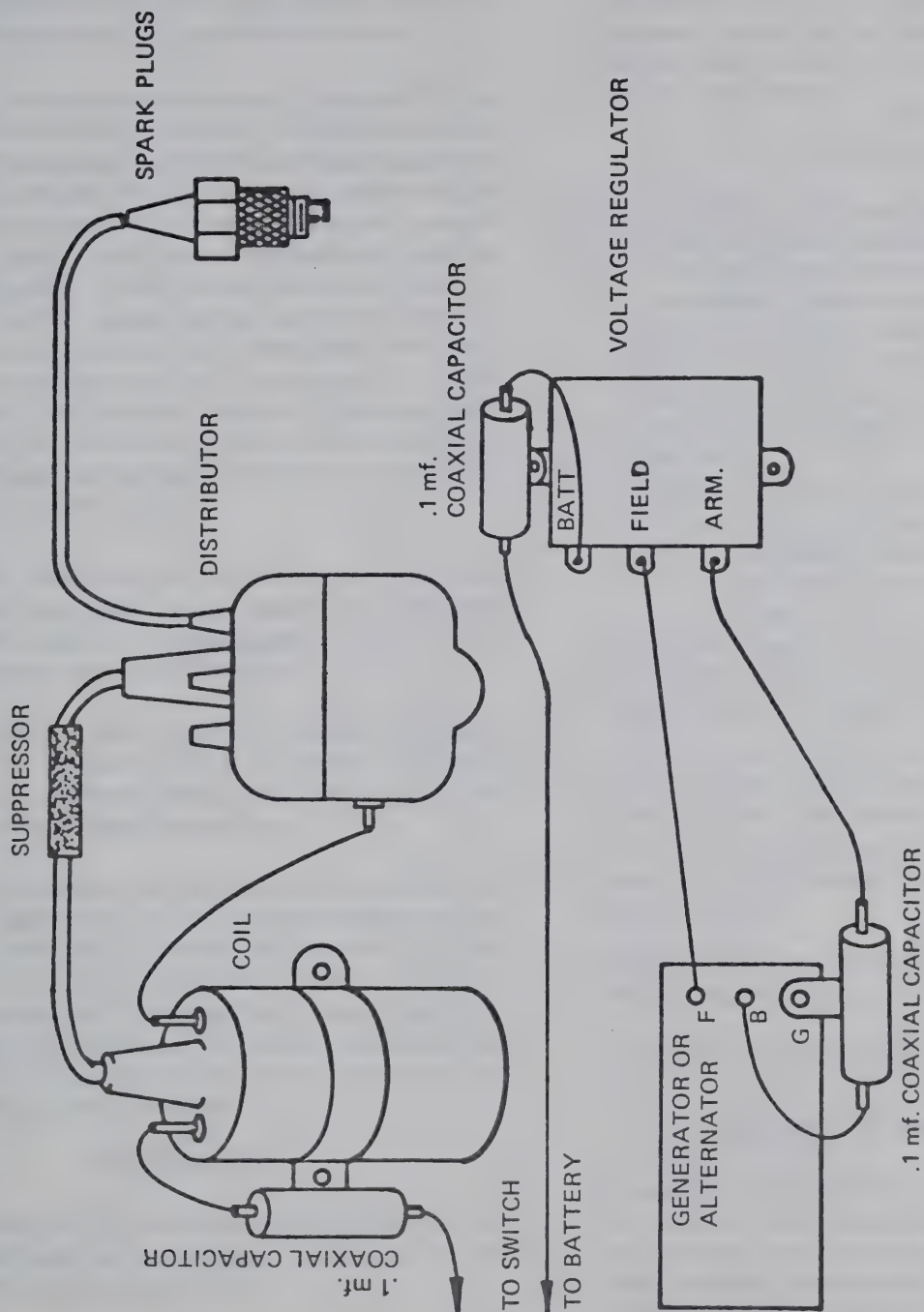
A mounting cradle is furnished that permits you to mount the set on a shelf or, by reversing the covers, it can be mounted on the cabin overhead. Remove thumb screws to mount cradle.

The wires from the power plug connector must be connected directly to the battery, not to switches, common terminals, ammeter or circuit breakers. If more wire is needed install a junction box and use #10 or 12 GA. for the rest of the run. The wire with the red strip is positive and the other negative. Note that the connector is polarized. Do not force.









In some cases, a larger capacitor is required to suppress the whining noise. 1.0 MF usually is sufficient, however in stubborn cases, a choke and condenser combination may be required.

# **BASIC NOISE SUPPRESSION FOR GASOLINE ENGINES — 150-175 MHz**







**Engine Noise Suppression:** While light ignition noise interference is not as bothersome on VHF-FM as it is on other bands, noise suppression should be done even though it does not seem to be bothersome. Noise pulses chop "holes" in the received signal and weaker stations can be completely blanked out.

The following procedure for basic noise elimination will also improve reception on other radios and direction finders and provide better operation of all types of depth sounders.

**Spark Plugs:** On some makes of engines, Champion "U" type spark plugs (such as UJ6) are specified. We have found that it is impossible to eliminate noise caused by these plugs as they have an extra spark gap near the top of plug which causes the leads to radiate this noise. The remedy is to replace these with resistor type plugs or, better yet, use standard spark plugs with the new MSW cables. This cable looks like ordinary cable, but instead of a solid or carbonized conductor, it consists of a coiled winding of monel wire over a ferrite core which acts as an RF choke reducing the noise to a very low level. As this wire has a very low resistance compared to the usual suppressors, there is no loss in engine performance. These cables are sold in complete sets packaged for most engines and can be snapped in place in a few minutes.

**Ignition Coils:** Coils should be mounted on the engine. Clean away paint to insure good ground. Certain coils such as the Mallory plastic encased unit radiate excessive noise and should be replaced with a standard metal cased unit.

**Voltage Regulators:** Older types of regulators contain a vibrating set of contacts to control voltage. If the usual capacitors do not quiet the frying noise, replace with a solid state regulator which has no moving parts.

**Tachometers:** Some electrical tachometers cause considerable radiation of spark noise. This type of tach connects to the points at the distributor. Disconnect the tach wire at the distributor and note the noise reduction. This lead should be shielded or a special tach filter installed. If Sun tachs are used, all wires must be shielded and the plastic cased sender unit which contains a vibrating set of contacts should be completely shielded in a metal enclosure.

## OPERATION

When your Model "1425" has been properly installed and you have made the proper entry in your ship's radio log, you may begin radio-telephone communication.

### OPERATING PROCEDURE

#### TO RECEIVE

Turn the Model "1425" power switch ON. This switch is part of the volume control. (The red pilot lamp should light indicating

the receiver is on). Set the channel selector to 16. This is the channel you are required to monitor and to make your initial radio contact on. The "1425" is ready for instant reception or transmission on the selected channel since it is completely transistorized and does not require a warm-up period. Adjust the Volume control for the desired listening level and then adjust the Squelch control to a point where the audible hissing noise is just cut off. If some other station is transmitting on Channel 16, adjust the Squelch control to a point where the speech is clear but the noise between transmissions is cut out. DO NOT attempt to transmit on Channel 16 if another station is transmitting.

#### TO TRANSMIT

Turn the Model "1425" power switch ON. Monitor Channel 16 to be sure the channel is clear before operating your transmitter. Transmission starts the moment you depress the switch on the microphone. Depress the microphone switch and talk directly into the microphone holding it close to your mouth. The red light will get brighter when microphone switch is pressed. To receive you must release the microphone switch. The proper procedure for radio-telephone communication is given in the example below.

**EXAMPLE:** "Bluebird — this is Sailfish WXZ9999." When your party answers on Channel 16, "Sailfish, this is Bluebird WXX8888," switch to Channel 70 or the channel desired and continue your communication.

To alleviate congestion on Channel 16, the F.C.C. recommends that calls from the boat to all shore stations (except the Coast Guard) be made on the shore station's working frequency.

If you are attempting to contact Bridge Tenders or Lock Operators, you must operate your transmitter in the LOW Power position. LOW Power should also be used whenever possible to prevent interfering with other radio-telephone users. If it is not possible to communicate using LOW Power, switch to HIGH.

When you have completed your radio-telephone conversation, you must sign off giving your FCC assigned call sign.

**EXAMPLE:** "EZX9999 OVER AND OFF."

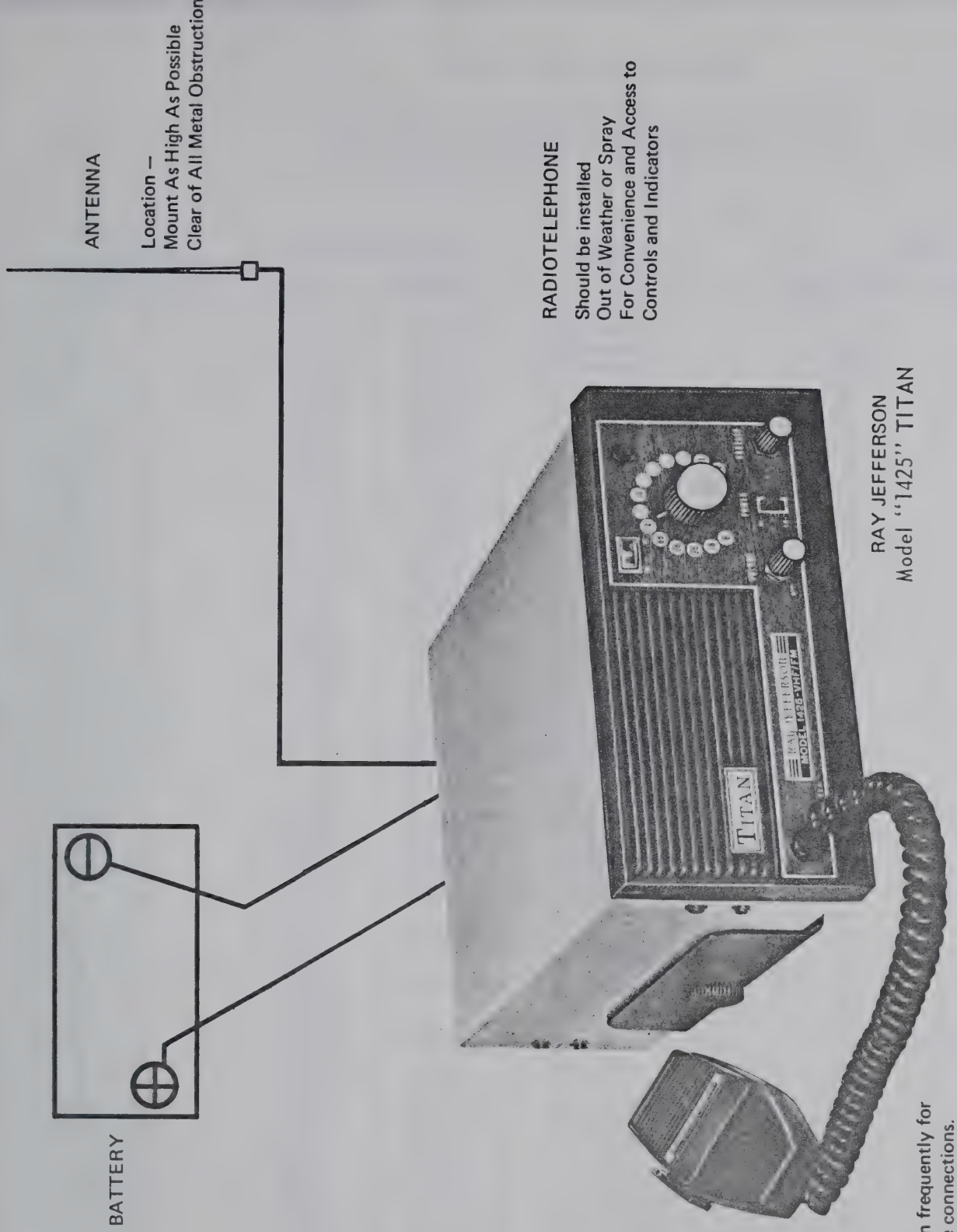
#### OPERATOR'S MAINTENANCE

To keep the Model "1425" in "like new" condition, wax cabinet and panel with a regular auto type wax polish. Under no circumstances, spray the inside of the unit with any type of so called protective spray as many of the component parts can be ruined and your guarantee will be voided.

Your antenna and connections should be inspected at least once a year by a competent licensed technician. The VSWR should be measured and faults corrected where necessary to insure the lowest possible VSWR to prolong the life of the transistors. FCC Regulation 83.157 requires that all transmitter maintenance must be performed by a licensed technician.







NOTE — Check installation frequently for corrosion or loose connections.

TYPICAL INSTALLATION





## OPERATING FREQUENCIES

The following is a list of channels and operating frequency of each channel. Your selection of a channel should be limited to the uses specified in this list.

| CHANNEL<br>DESIGNATION | FREQUENCY (MHz) |         | TYPE OF<br>TRAFFIC       | FUNCTION     |               |
|------------------------|-----------------|---------|--------------------------|--------------|---------------|
|                        | SHIP            | SHORE   |                          | SHIP-TO-SHIP | SHIP-TO-SHORE |
| 06                     | 156.300         |         | Safety                   | Yes          | No            |
| 07                     | 156.350         | 160.950 | Int'l Only               | Yes          | Yes           |
| 07A                    | 156.350         | 156.350 | Commercial               | Yes          | Yes           |
| 08                     | 156.400         |         | Commercial               | Yes          | No            |
| 09                     | 156.450         | 156.450 | Commercial               | Yes          | Yes           |
| 09                     | 156.450         | 156.450 | Non-Commercial           | No           | Yes           |
| 10                     | 156.500         | 156.500 | Commercial               | Yes          | Yes           |
| 11                     | 156.550         | 156.550 | Commercial               | Yes          | Yes           |
| 12                     | 156.600         | 156.600 | Port Operations          | Yes          | Yes           |
| 12                     | 156.600         | 156.600 | Coast Guard Working      | No           | Yes           |
| 13                     | 156.650         | 156.650 | Navigational             | Yes          | Yes           |
| 14                     | 156.700         | 156.700 | Port Operations          | Yes          | Yes           |
| 15                     | 156.750         | 156.750 | Weather Pending          | Receive Only | Receive Only  |
| 16                     | 156.800         | 156.800 | Safety and Calling       | Yes          | Yes           |
| 17                     | 156.850         | 156.850 | State Control            | No           | Yes           |
| 18                     | 156.900         | 161.500 | Int'l Only               | Yes          | Yes           |
| 18A                    | 156.900         | 156.900 | Commercial               | Yes          | Yes           |
| 19                     | 156.950         | 161.550 | Int'l Only               | Yes          | Yes           |
| 19A                    | 156.950         | 156.950 | Commercial               | Yes          | Yes           |
| 20                     | 157.000         | 161.600 | Port Operations          | No           | Yes           |
| 21CG                   | 157.050         | 157.050 | Coast Guard              | Yes          | Yes           |
| 22CG                   | 157.100         | 157.100 | Coast Guard              | Yes          | Yes           |
| 23CG                   | 157.150         | 157.150 | Coast Guard              | Yes          | Yes           |
| 24                     | 157.200         | 161.800 | Public Correspondence    | No           | Yes           |
| 25                     | 157.250         | 161.850 | Public Correspondence    | No           | Yes           |
| 26                     | 157.300         | 161.900 | Public Correspondence    | No           | Yes           |
| 27                     | 157.350         | 161.950 | Public Correspondence    | No           | Yes           |
| 28                     | 157.400         | 162.000 | Public Correspondence    | No           | Yes           |
| 65                     | 156.275         | 160.875 | Int'l Only               | Yes          | Yes           |
| 65A                    | 156.275         | 156.275 | Port Operations          | Yes          | Yes           |
| 66                     | 156.325         | 160.925 | Int'l Only               | Yes          | Yes           |
| 66A                    | 156.325         | 156.325 | Port Operations          | Yes          | Yes           |
| 67                     | 156.375         |         | Commercial               | Yes          | No            |
| 68                     | 156.425         | 156.425 | Non-Commercial           | Yes          | Yes           |
| 69                     | 156.475         | 156.475 | Non-Commercial           | No           | Yes           |
| 70                     | 156.525         |         | Non-Commercial           | Yes          | No            |
| 71                     | 156.575         | 156.575 | Non-Commercial (Marinas) | No           | Yes           |
| 72                     | 156.625         |         | Non-Commercial           | Yes          | No            |
| 73                     | 156.675         | 156.675 | Port Operations          | Yes          | Yes           |
| 74                     | 156.725         | 156.725 | Port Operations          | Yes          | Yes           |
| 77                     | 156.875         |         | Commercial               | Yes          | No            |
| 78                     | 156.925         | 161.525 | Int'l Only               | Yes          | Yes           |
| 78A                    | 156.925         | 156.925 | Non-Commercial           | No           | Yes           |
| 79                     | 156.975         | 161.575 | Int'l Only               | Yes          | Yes           |
| 79A                    | 156.975         | 156.975 | Commercial               | Yes          | Yes           |
| 80                     | 157.025         | 161.625 | Int'l Only               | Yes          | Yes           |
| 80A                    | 157.025         | 157.025 | Commercial               | No           | Yes           |
| 81                     | 157.075         | 157.075 | Coast Guard Aux.         | Yes          | Yes           |
| 83CG                   | 157.175         | 157.175 | Coast Guard Aux.         | Yes          | Yes           |
| 84                     | 157.225         | 161.825 | Public Correspondence    | No           | Yes           |
| 85                     | 157.275         | 161.875 | Public Correspondence    | No           | Yes           |
| 86                     | 157.325         | 161.925 | Public Correspondence    | No           | Yes           |
| 87                     | 157.375         | 161.975 | Public Correspondence    | No           | Yes           |
| 88                     | 157.425         | 162.025 | Int'l Only               | Yes          | Yes           |
| 88A                    | 157.425         |         | Commercial Fishing       | Yes          | No            |
| WE <sub>1</sub>        |                 | 162.550 | NOAA Weather             | Receive Only | Receive Only  |
| WE <sub>2</sub>        |                 | 162.400 | NOAA Weather             | Receive Only | Receive Only  |

**NOTE:** The letter A after certain channel numbers denotes simplex operation in the United States.  
Int'l. denotes duplex usage in International Service and is not used in the United States.





| CHANNEL<br>NUMBER | RECEIVER<br>WORKING FREQ. | RECEIVER<br>CRYSTAL FREQ. | CHANNEL<br>NUMBER | TRANSMITTER<br>WORKING FREQ. | TRANSMITTER<br>CRYSTAL FREQ. |
|-------------------|---------------------------|---------------------------|-------------------|------------------------------|------------------------------|
| 06                | 156.300                   | 48.53333                  | 06                | 156.300                      | 13.02500                     |
| 07                | 160.950                   | 50.08333                  | 07                | 156.350                      | 13.02916                     |
| 07A               | 156.350                   | 48.55000                  | 07A               | 156.350                      | 13.02916                     |
| 08                | 156.400                   | 48.56666                  | 08                | 156.400                      | 13.03333                     |
| 09                | 156.450                   | 48.58333                  | 09                | 156.450                      | 13.03750                     |
| 10                | 156.500                   | 48.60000                  | 10                | 156.500                      | 13.04166                     |
| 11                | 156.550                   | 48.61666                  | 11                | 156.550                      | 13.04583                     |
| 12                | 156.600                   | 48.63333                  | 12                | 156.600                      | 13.05000                     |
| 13                | 156.650                   | 48.65000                  | 13                | 156.650                      | 13.05416                     |
| 14                | 156.700                   | 48.66666                  | 14                | 156.700                      | 13.05833                     |
| 15                | 156.750                   | 48.68333                  | 15                | 156.750                      | 13.06250                     |
| 16                | 156.800                   | 48.70000                  | 16                | 156.800                      | 13.06666                     |
| 17                | 156.850                   | 48.71666                  | 17                | 156.850                      | 13.07083                     |
| 18                | 161.500                   | 50.26666                  | 18                | 156.900                      | 13.07500                     |
| 18A               | 156.900                   | 48.73333                  | 18A               | 156.900                      | 13.07500                     |
| 19                | 161.550                   | 50.28333                  | 19                | 156.950                      | 13.07916                     |
| 19A               | 156.950                   | 48.75000                  | 19A               | 156.950                      | 13.07916                     |
| 20                | 161.600                   | 50.30000                  | 20                | 157.000                      | 13.08333                     |
| 21                | 157.050                   | 48.78333                  | 21                | 157.050                      | 13.08750                     |
| 22                | 157.100                   | 48.80000                  | 22                | 157.100                      | 13.09166                     |
| 23                | 157.150                   | 48.81666                  | 23                | 157.150                      | 13.09583                     |
| 24                | 161.800                   | 50.36666                  | 24                | 157.200                      | 13.10000                     |
| 25                | 161.850                   | 50.38333                  | 25                | 157.250                      | 13.10416                     |
| 26                | 161.900                   | 50.40000                  | 26                | 157.300                      | 13.10833                     |
| 27                | 161.950                   | 50.41666                  | 27                | 157.350                      | 13.11250                     |
| 28                | 162.000                   | 50.43333                  | 28                | 157.400                      | 13.11666                     |
| 65                | 160.875                   | 50.05833                  | 65                | 156.275                      | 13.02292                     |
| 65A               | 156.275                   | 48.52500                  | 65A               | 156.275                      | 13.02292                     |
| 66                | 160.925                   | 50.07500                  | 66                | 156.325                      | 13.02708                     |
| 66A               | 156.325                   | 48.54166                  | 66A               | 156.325                      | 13.02708                     |
| 67                | 156.375                   | 48.55833                  | 67                | 156.375                      | 13.03125                     |
| 68                | 156.425                   | 48.57500                  | 68                | 156.425                      | 13.03542                     |
| 69                | 156.475                   | 48.59166                  | 69                | 156.475                      | 13.03959                     |
| 70                | 156.525                   | 48.60833                  | 70                | 156.525                      | 13.04375                     |
| 71                | 156.575                   | 48.62500                  | 71                | 156.575                      | 13.04792                     |
| 72                | 156.625                   | 48.64166                  | 72                | 156.625                      | 13.05208                     |
| 73                | 156.675                   | 48.65833                  | 73                | 156.675                      | 13.05625                     |
| 74                | 156.725                   | 48.67500                  | 74                | 156.725                      | 13.06042                     |
| 77                | 156.875                   | 48.72500                  | 77                | 156.875                      | 13.07292                     |
| 78                | 161.525                   | 50.27555                  | 78                | 156.925                      | 13.07708                     |
| 78A               | 156.925                   | 48.74166                  | 78A               | 156.925                      | 13.07708                     |
| 79                | 161.575                   | 50.29166                  | 79                | 156.975                      | 13.08125                     |
| 79A               | 156.975                   | 48.75833                  | 79A               | 156.975                      | 13.08125                     |
| 80                | 161.625                   | 50.30833                  | 80                | 157.025                      | 13.08542                     |
| 80A               | 157.025                   | 48.77500                  | 80A               | 157.025                      | 13.08542                     |
| 81                | 157.075                   | 48.79166                  | 81                | 157.075                      | 13.08958                     |
| 83                | 157.175                   | 48.82500                  | 83                | 157.175                      | 13.09791                     |
| 84                | 161.825                   | 50.37500                  | 84                | 157.225                      | 13.10208                     |
| 85                | 161.875                   | 50.39166                  | 85                | 157.275                      | 13.10625                     |
| 86                | 161.925                   | 50.40833                  | 86                | 157.325                      | 13.11042                     |
| 87                | 161.975                   | 50.42500                  | 87                | 157.375                      | 13.11458                     |
| 88                | 162.025                   | 50.44166                  | 88                | 157.425                      | 13.11875                     |
| 88A               | 157.425                   | 48.90833                  | 88A               | 157.425                      | 13.11875                     |
| WE-1              | 162.550                   | 50.61666                  | WE-1              |                              |                              |
| WE-2              | 162.400                   | 50.56666                  | WE-2              |                              |                              |





## OPERATING LIMITATIONS

Ship's station operators should try to limit their conversations so as not to inconvenience other operators. Consult the FCC Rules and Regulations for information pertaining to operating time limitations, procedures for safety and distress calls, response to violation notices and other requirements for ship-board radio-telephone stations.

### TECHNICIAN MAINTENANCE: TRANSMITTER ADJUSTMENTS

1. Set power switch to "Hi" power.
2. Connect 50 ohm load - wattmeter (25 watts) to the antenna connector.
3. Turn unit on by rotating volume control clockwise. Red front panel light will go on.
4. Set channel selector switch to Channel 16.
5. Set Vacuum Tube voltmeter to +5 VDC scale. Connect negative lead to chassis ground and positive lead to TP-101.  
Note: Do not leave transmitter keyed too long during tune up. (30 sec. on 60 sec. off is OK.)
6. Key transmitter and adjust L-101 and L-102 for a maximum indication. (1 - 2 volts).
7. Move positive lead of VTVM to TP-102.
8. Key transmitter and adjust L-103 and L-104 for a maximum indication. (.5 - 1 volt).
9. Move positive lead of VTVM to TP-303
10. Key transmitter and adjust L-106 and L-107 for a maximum indication. Adjust L-109 for a minimum indication. (1 - 2 volts).
11. Remove VTVM.
12. Observe 50 ohm 25 wattmeter.
13. Key transmitter and adjust L-110, C-202 and C-217 for maximum output (25 watts).
14. Key transmitter and using a frequency meter set C-113-C-122 (depending on Channel used) to the exact frequency, such as Channel 6T, 156,300,000 Hz.

## DEVIATION ADJUSTMENT

1. Connect an audio generator and an A.C. VTVM to the red wire from the microphone and ground.
2. Set audio osc. to 400 Hz.
3. Adjust level of audio osc. to .1 VRMS.
4. Key transmitter and adjust deviation control (R-149) for 4.5KHz as indicated on deviation monitor.

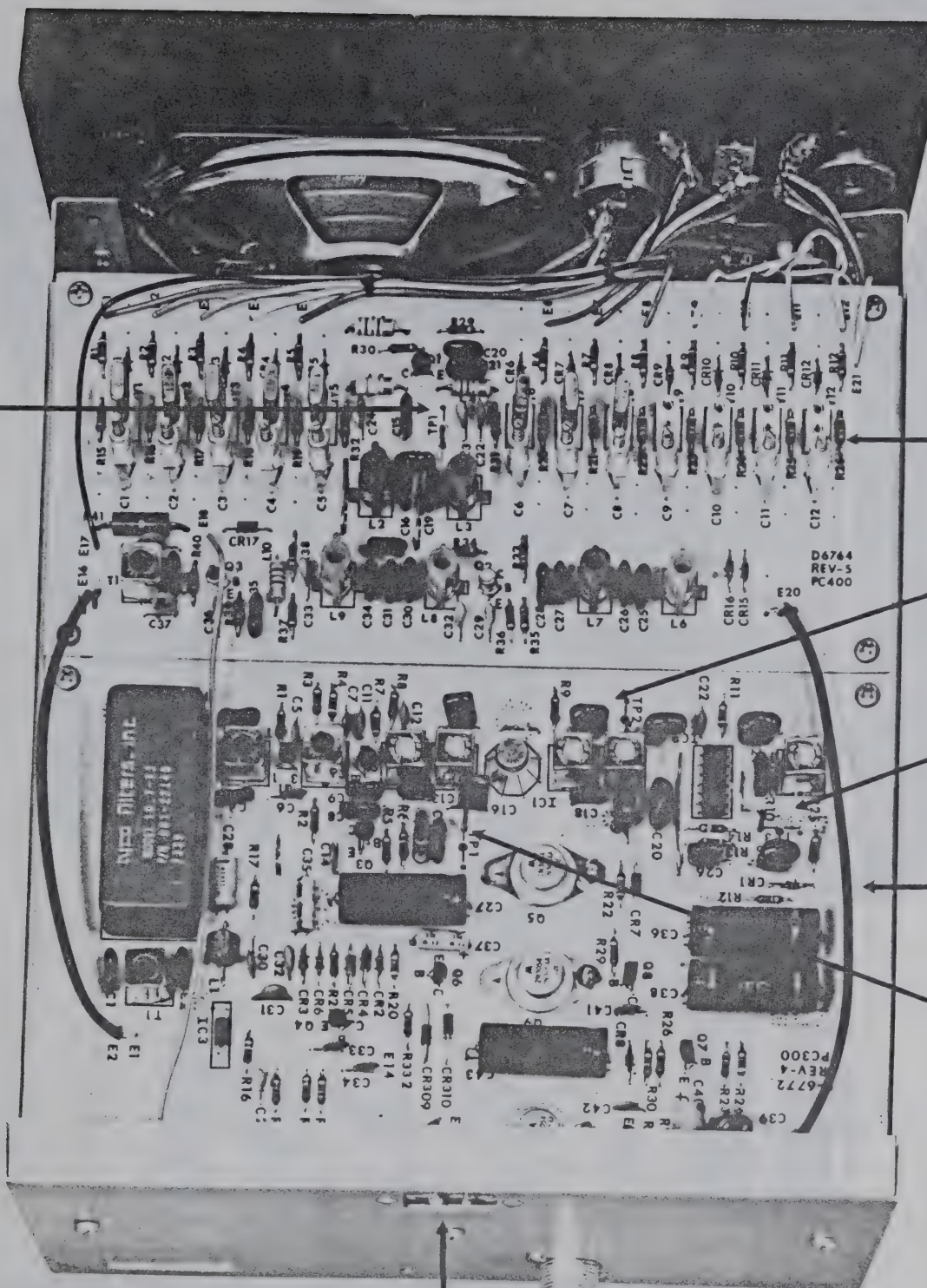
### RECEIVER ALIGNMENT

1. Turn on unit and connect an electronic counter to TP-401 and set C-401-C414 (Depending on channel used) to the exact crystal frequency such as channel 6R 48, 53333 KHz.
2. Turn unit on and connect a 50 ohm signal generator to the antenna terminal.
3. Set generator to 156.8 MHz and unit to Channel 16.
4. Connect scope to TP-301 and ground.
5. Adjust L-402, L-403, L-406, L-407, L-408, L-409, T-401, T-301, T-302, T-303, T-304 and T-305 for maximum output.
6. Move scope probe to TP-302.
7. Adjust T-306 and T-307 for maximum output.
8. Move scope probe to TP-303.
9. Adjust T-308 for maximum output.





TP-401



J-501  
POWER INPUT  
CONNECTOR

J-502  
ANTENNA  
CONNECTOR

TP-302

TP-303

TP-301

PC-400  
RECEIVER FRONT END BOARD

PC-300  
I.F. AUDIO AND 10.6V REGULATOR  
BOARD





PC-100  
TRANSMITTER EXCITER BOARD

PC-200  
POWER AMPLIFIER BOARD

TP-101

TP-102

TP-103





## RADIO LOG

### RAY JEFFERSON MODEL "1425" VHF-FM RADIOTELEPHONE

Date of Installation \_\_\_\_\_ Time \_\_\_\_\_

#### TRANSMITTER MEASUREMENTS

| <u>CHANNEL SERVICE</u> | <u>FREQUENCY</u> | <u>ERROR</u> | <u>DEVIATION KHz</u> | <u>POWER</u> |
|------------------------|------------------|--------------|----------------------|--------------|
| 6                      | 156,300          |              |                      |              |
| 16                     | 156,800          |              |                      |              |
| 14                     | 156,700          |              |                      |              |
| 22                     | 157,100          |              |                      |              |
| 26                     | 157,300          |              |                      |              |
| 28                     | 157,400          |              |                      |              |
| 68                     | 156,425          |              |                      |              |
| 70                     | 156,525          |              |                      |              |
|                        |                  |              |                      |              |
|                        |                  |              |                      |              |
|                        |                  |              |                      |              |
|                        |                  |              |                      |              |
|                        |                  |              |                      |              |

EQUIPMENT USED TO MEASURE FREQUENCY: \_\_\_\_\_

DEVIATION: \_\_\_\_\_

POWER: \_\_\_\_\_

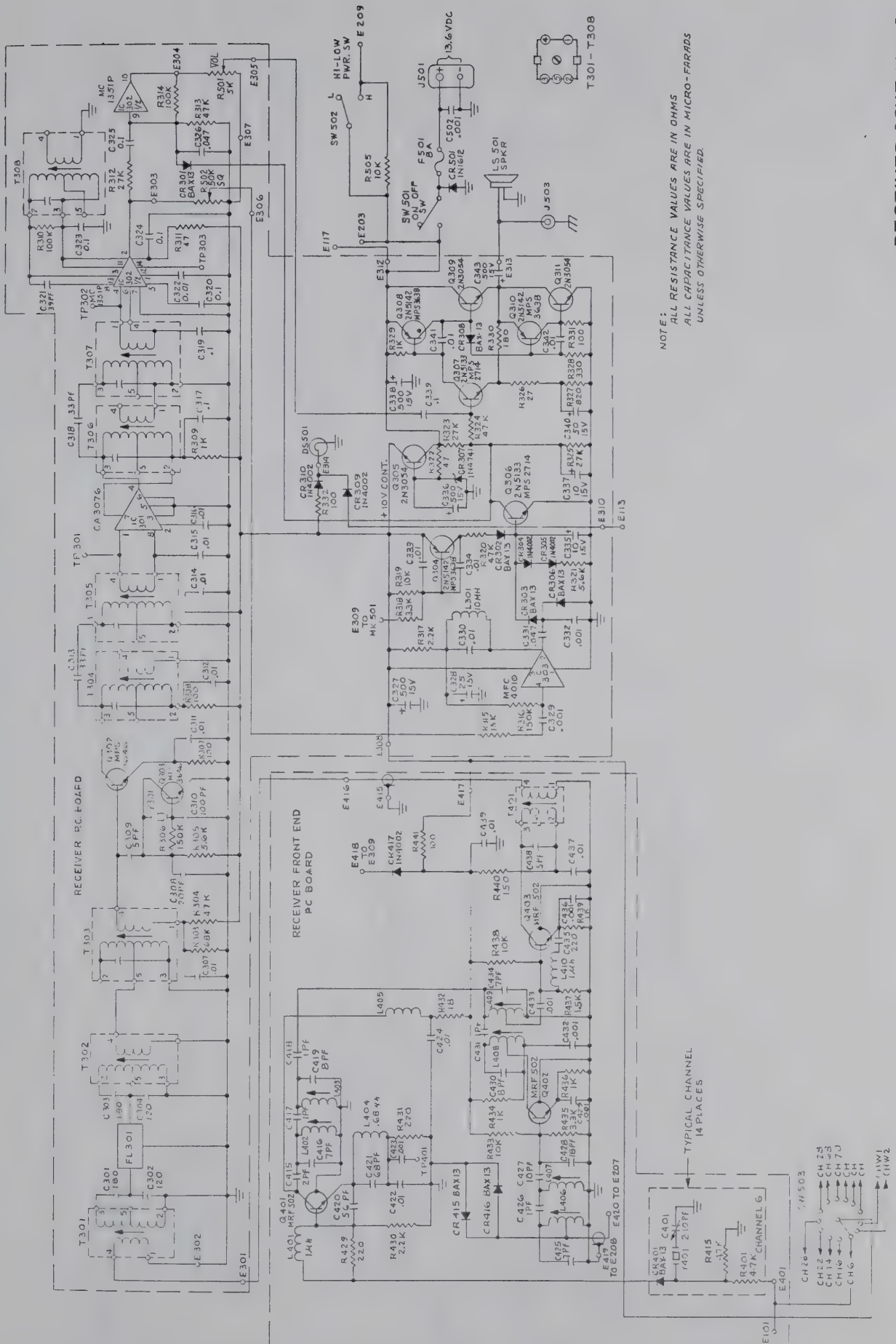
TECHNICIAN \_\_\_\_\_

LICENSE NO. AND EXPIRATION DATE \_\_\_\_\_





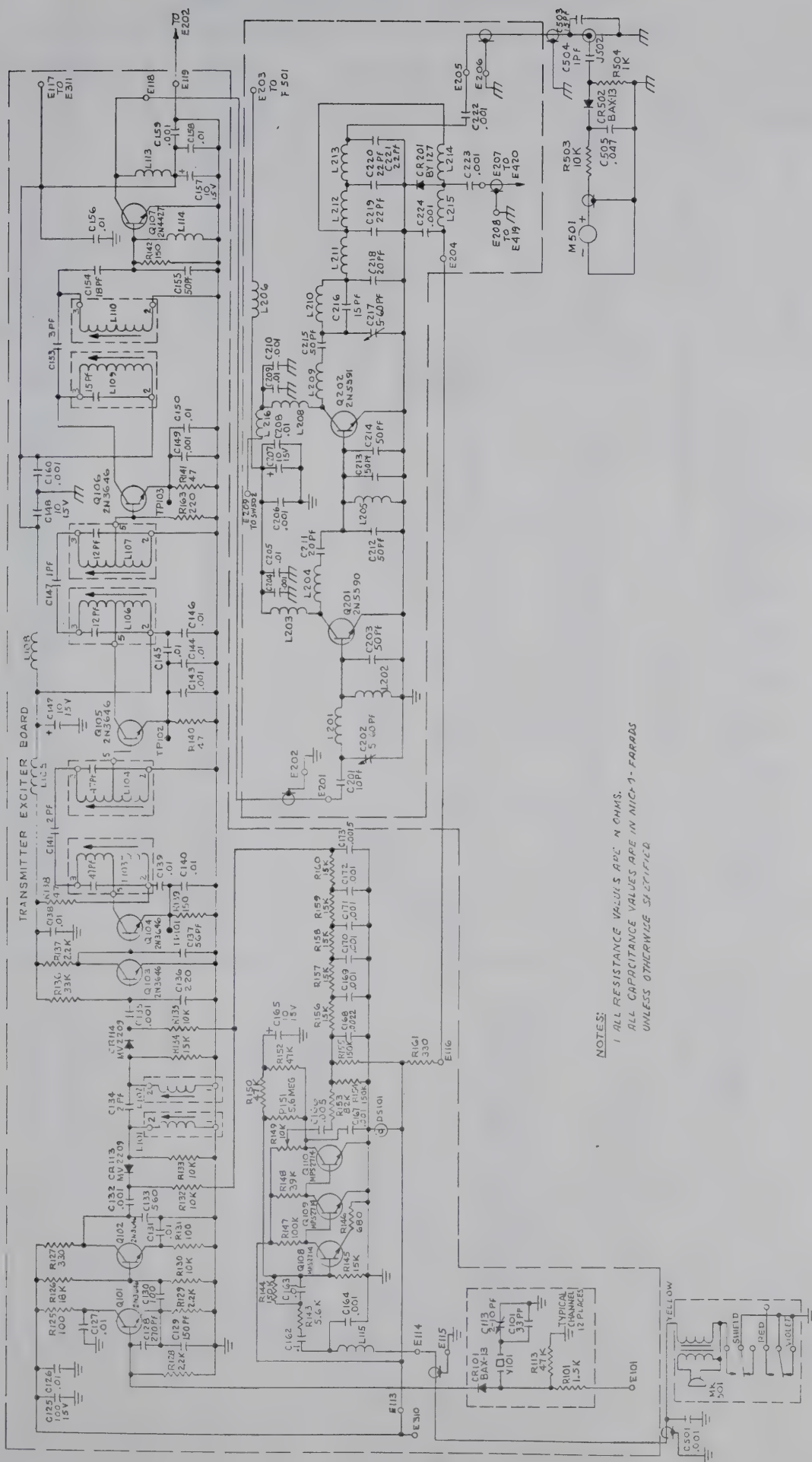
# RECEIVER SCHEMATIC MODEL "1425" VHF/FM







# TRANSMITTER SCHEMATIC MODEL "1425" VHF/FM








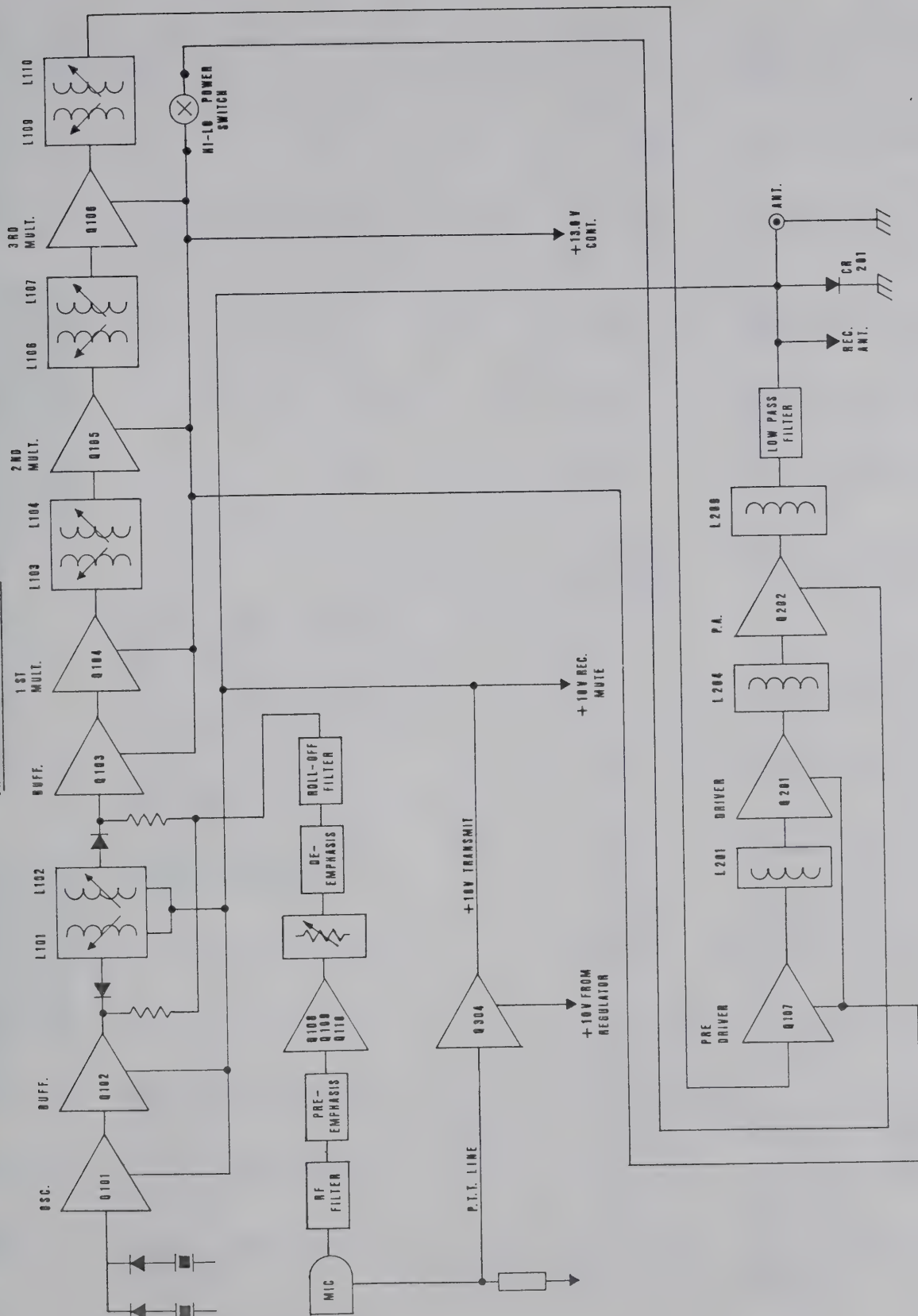
# SEMICONDUCTOR DC VOLTAGE CHART

All voltages are positive in respect to ground except where noted.

| TRANSISTOR | BASE           | EMITTER | COLLECTOR | CONDITION   |
|------------|----------------|---------|-----------|---|
| Q-101      | 6.0            | 5.40    | 10.0      | TRANSMIT<br> |
| Q-102      | 2.20           | 1.60    | 5.60      |   |
| Q-103      | 6.0            | 0       | 2.0       |   |
| Q-104      | 2.0            | 2.80    | 13.0      |   |
| Q-105      | 0.60           | 1.6     | 13.6      |   |
| Q-106      | 0.60           | 2.0     | 13.6      |   |
| Q-107      | 0.60           | .0      | 13.6      |   |
| Q-108      | 0.63           | 0.10    | 0.56      |   |
| Q-109      | 0.56           | 0       | 0.59      |   |
| Q-110      | 0.59           | 0       | 4.60      |   |
| Q-201      | DO NOT MEASURE |         |           |   |
| Q-202      | DO NOT MEASURE |         |           |   |
| Q-302      | 1.0            | 0.40    | 10.6      | REC.  |
| Q-303      | 0.5            | 0       | 6.0       | REC.  |
| Q-304      | 10.4           | 10.4    | 0         | REC.  |
| Q-304      | 10.2           | 10.0    | 10.4      | TRANS.  |
| Q-305      | 11.0           | 10.6    | 13.6      | REC. & TRANS.   |
| Q-306      | 0              | 0       | 6.0       | UNSQ  |
| Q-306      | 0.6            | 0       | 0.12      | SQ  |
| Q-307      | 5.50           | 5.0     | 11.5      | UNSQ  |
| Q-307      | 0.10           | 0       | 13.6      | SQ  |
| Q-308      | 11.5           | 12.2    | 6.4       | UNSQ  |
| Q-308      | 13.6           | 13.6    | 0         | SQ  |
| Q-309      | 6.4            | 5.80    | 12.2      | UNSQ  |
| Q-309      | 0              | 0       | 13.6      | SQ  |
| Q-310      | 5.60           | 5.80    | 0.20      | UNSQ  |
| Q-310      | 0              | 0       | 0         | SQ  |
| Q-311      | 0.20           | 0       | 5.80      | UNSQ  |
| Q-311      | 0              | 0       | 0         | SQ  |
| Q-401      | 3.0            | 2.20    | 9.0       | REC.  |
| Q-402      | 2.20           | 1.60    | 7.60      | REC.  |
| Q-403      | 1.20           | 0.60    | 9.0       | REC.  |
|            |                |         |           |   |
| IC-302     |                |         |           |   |
| 1C-301     | SQ             | UNSQ    | IC-303    |   |
| 1 - 1.40   | 1 - 5.0        | 5.0     | 1 - 0     |   |
| 2 - 1.40   | 2 - 4.20       | 4.20    | 2 - 4.0   |   |
| 3 - 0      | 3 - 4.0        | 4.0     | 3 - 10.6  |   |
| 4 - 4.0    | 4 - 2.0        | 2.0     | 4 - 0.60  |   |
| 5 - 0      | 5 - 2.0        | 2.0     |           |   |
| 6 - 0      | 6 - 2.0        | 2.0     |           |   |
| 7 - 4.0    | 7 - 0          | 0       |           |   |
| 8 - 1.40   | 8 - 0.20       | 0.20    |           |   |
|            | 9 - .6 to .8   | 1.20    |           |   |
|            | 10 - 9.40      | 4.0     |           |   |
|            | 11 - 4.0       | 4.0     |           |   |
|            | 12 - 3.50      | 3.50    |           |   |
|            | 13 - 4.0       | 4.0     |           |   |
|            | 14 - 10.0      | 10.0    |           |   |



TRANSMITTER BLOCK DIAGRAM







# REPLACEMENT PARTS LIST

|   |  |                                   |  |
|---|--|-----------------------------------|--|
| C-101 thru<br>C-112,313,318   | Capacitor, Fixed, Duramica<br>33pf $\pm$ 5%              | C-137,420                         | Capacitor, Fixed, Duramica<br>56pf $\pm$ 10%             |
| C-113 thru<br>C-124   | Capacitor, Variable, Piston                              | C-142, 148<br>157, 165            | Capacitor, Fixed, Miniature<br>Aluminum Elect. 10MFD 15V |
| C-401 thru<br>C-414   | 2-10pf   | C-147,<br>417, 418<br>426, 431    | Capacitor, Fixed, Duramica<br>1pf $\pm$ .5pf             |
| C-125   | Capacitor, Fixed Miniature<br>Aluminum Elect. 100MFD 15V |                                   |  |
| C-126,127,131<br>138,139,140<br>144,145,146<br>150,156,158<br>163,205,208<br>209,307,311<br>312,314,315<br>316,322,333<br>334,341,342<br>422,424,437<br>439 | Capacitor, Fixed, Ceramic<br>.01MFD +80 -20% 100V        | C-153                             | Capacitor, Fixed, Duramica<br>3pf $\pm$ .5pf             |
| C-128   | Capacitor, Fixed, Duramica<br>270pf $\pm$ 10%            | C-154                             | Capacitor, Fixed, Duramica<br>18pf $\pm$ 10%             |
| C-129   | Capacitor, Fixed, Duramica<br>150pf $\pm$ 10%            | C-155                             | Capacitor, Fixed, Duramica<br>50pf $\pm$ 10%             |
| C-130, 310  | Capacitor, Fixed, Duramica<br>100pf $\pm$ 10%            | C-162,317<br>323, 324<br>325, 339 | Capacitor, Fixed, Poly-Film<br>.1MFD $\pm$ 20% 100V      |
| C-132,135,143<br>149,159,160<br>164,167,169<br>thru 172,204,<br>206,210,222<br>223,224,329<br>423,429,432<br>433,436,501<br>502,                            | Capacitor, Fixed, Ceramic<br>.001MFD GMV 100V            | C-166                             | Capacitor, Fixed, Poly-Film<br>.0047MFD $\pm$ 20% 100V   |
| C-133   | Capacitor, Fixed, Duramica<br>560pf $\pm$ 10%            | C-168                             | Capacitor, Fixed, Poly-Film<br>.0022MFD $\pm$ 10% 100V   |
| C-134,141,415   | Capacitor, Fixed, Duramica<br>2pf $\pm$ .5pf             | C-173                             | Capacitor, Fixed, Poly-Film<br>.0015MFD $\pm$ 10% 100V   |
| C-136   | Capacitor, Fixed, Duramica<br>220pf $\pm$ 10%            | C-201,427                         | Capacitor, Fixed, Duramica<br>10pf $\pm$ 5%              |
|   |  | C-202,217                         | Capacitor, Variable,<br>Miniature Trimmer 5-60pf         |
|   |  | C-203,212,213<br>214, 215         | Capacitor, Fixed, Duramica<br>50pf $\pm$ 5%              |
|   |  | C-207,335,337                     | Capacitor, Fixed, Miniature<br>Aluminum Elect. 10MFD 15V |
|   |  | C-211, 218                        | Capacitor, Fixed, Duramica<br>20pf $\pm$ 5%              |
|   |  | C-216, 503                        | Capacitor, Fixed, Duramica<br>15pf $\pm$ 5%              |





# REPLACEMENT PARTS LIST

|                        |   |   |                                      |
|------------------------|---|---|--------------------------------------|
| C-219,220,221          | Capacitor, Fixed, Duramica<br>22pf $\pm 5\%$              | CR-101 thru<br>112,301<br>302,303<br>306,308<br>401 thru<br>416,502 | Diode, BAX-13                        |
| C-301, 303             | Capacitor, Fixed, Duramica<br>180pf $\pm 10\%$            |   |                                      |
| C-302, 304             | Capacitor, Fixed, Duramica<br>120pf $\pm 10\%$            |   |                                      |
| C-308                  | Capacitor, Fixed Duramica<br>20pf $\pm 10\%$              | CR-113, 114   | Diode, 1N3182 or MV2209              |
| C-309, 438             | Capacitor, Fixed, Duramica<br>5pf $\pm .5$ pf             | CR-201<br>CR-304, 305<br>309, 310<br>417                            | Diode, BY-127<br>Diode, 1N4002       |
| C-319, 320             | Capacitor Fixed, Ceramic<br>.1MFD + 80 - 20% 100V         | CR-307  | Diode, 1N4741A                       |
| C-326,331<br>505       | Capacitor, Fixed, Poly-Film<br>.047MFD $\pm 20\%$ 100V    | CR-501  | Diode, 1N1612                        |
| C-321                  | Capacitor, Fixed, Duramica<br>39pf $\pm 10\%$             | DS-101, 501   | Lamp & Holder<br>12VDC L12/60        |
| C-327, 336<br>338, 343 | Capacitor, Fixed, Miniature<br>Aluminum Elect. 500MFD 15V | F-501   | Fuse 8AMPS 3AG                       |
| C-328                  | Capacitor, Fixed, Miniature<br>Aluminum Elect. 25MFD 15V  | XF-501  | Fuse Holder, B-8750-2                |
| C-330                  | Capacitor, Fixed, Ceramic<br>.01MFD $\pm 20\%$ 100V       | FL-301  | Crystal Filter,<br>001-22140 10-7 15 |
| C-332                  | Capacitor, Fixed, Ceramic<br>.001MFD $\pm 20\%$ 100V      | J-501   | Receptacle, B-9367-1                 |
| C-340                  | Capacitor, Fixed, Miniature<br>Aluminum Elect. 50MFD 15V  | J-502   | Coax Connector,<br>SO-239            |
| C-416, 425<br>434      | Capacitor, Fixed, Duramica<br>7pf $\pm .5$ pf             | J-503   | Jack, Phono 3501 PL                  |
| C-419, 430             | Capacitor, Fixed, Duramica<br>8pf $\pm .5$ pf             | LC-501  | Power Cord B-9366-1                  |
| C-421                  | Capacitor, Fixed, Duramica<br>68pf $\pm 5\%$              | LS-501  | Speaker, 4 ohms C-5095               |
| C-428                  | Capacitor, Fixed, Duramica<br>18pf $\pm 5\%$              | M-501   | Meter, B-9195                        |
| C-435                  | Capacitor, Fixed, Duramica<br>220pf $\pm 5\%$             | MK-501  | Microphone, C-4937                   |
|                        |   | XMK-501A  | Escutcheon, B-9245                   |
|                        |   | XMK-501B  | Hanger Mike, B-9066-1                |
|                        |   | SW-502  | Hi-Lo Power Switch<br>SPST G-123     |
|                        |   | SW-503  | Channel Selector Switch<br>C-5296    |



# REPLACEMENT PARTS LIST

|   |                                     |   |  |
|---|-------------------------------------|---|--|
| L-101, 102  | Coil, B-9131-1                      | Q-108, 109<br>110, 306<br>307   | Transistor, 2N5133 or<br>MPS2714                   |
| L-103   | Coil, B-9132-1                      |   |  |
| L-104   | Coil, B-9133-1                      |   |  |
| L-105, 108<br>113, 114<br>115, 206<br>215, 216<br>405 | Coil Ferroox Cube<br>#VK200-19/4B   | Q-201<br><br>Q-202  | Transistor, 2N5590<br><br>Transistor, 2N5591       |
| L-106   | Coil, B-9134-1                      |   |  |
| L-107   | Coil, B-9135-1                      | Q-304, 308<br>310   | Transistor, 2N5142 or<br>MPS-3638                  |
| L-109   | Coil, B-9136-1                      | Q-305, 309<br>311   | Transistor, 2N3054                                 |
| L-110   | Coil, B-9137-1                      |   |  |
| L-201, 203<br>208, 210                                | Coil, A-10866-1                     | Q-401, 402<br>403   | Transistor, MRF-502                                |
| L-202, 205  | Coil, Ferroox Cube<br>VK-211-17/4B  | QIC-301<br><br>QIC-302<br><br>QIC-303                                     | I.C. CA-3076<br><br>I.C. MC-1351P<br><br>MFC-4010A |
| L-204, 209  | Coil, A-10866-3                     |   |  |
| L-211 thru<br>214                                     | Coil, A-10866-2                     | R-101 thru<br>112, 128<br>129, 137<br>317, 430                            | Resistor, Fixed, Comp.<br>2.2Kohm $\pm 10\%$ 1/4W  |
| L-301   | 10MH RF Choke No.<br>70F102A1       |   |  |
| L-401, 410  | 1uh RF Choke No.<br>9310-12         | R-113 thru<br>121, 150<br>152, 304<br>313, 320<br>324,<br>415 thru<br>428 | Resistor, Fixed, Comp.<br>47Kohm $\pm 10\%$ 1/4W   |
| L-402, 403<br>407                                     | Coil No. 01871-BA2                  |   |  |
| L-404   | Coil 0.68uh RF Choke No.<br>9310-08 |   |  |
| L-406   | Coil No. 01871-BA1                  | R-125, 131<br>307, 308<br>331, 332  | Resistor, Fixed, Comp.<br>100ohm $\pm 10\%$ 1/4W   |
| L-408, 409  | Coil No. 01871-BA5                  |   |  |
| Q-101 thru 106<br>302, 303                            | Transistor, 2N3646 or<br>MPS-3646   | R-126, 503  | Resistor, Fixed, Comp.<br>18Kohm $\pm 10\%$ 1/4W   |
| Q-107   | Transistor, 2N4427                  | R-127, 161<br>328,  | Resistor, Fixed, Comp.<br>330ohm $\pm 10\%$ 1/4W   |





# REPLACEMENT PARTS LIST

|   |  |                                |  |
|---|--|--------------------------------|--|
| R-130, 132<br>133, 135<br>319, 433<br>438 | Resistor, Fixed, Comp.<br>10K ohm $\pm 10\%$ 1/4W    | R-303                          | Resistor, Fixed, Comp.<br>6.8K ohm $\pm 10\%$ 1/4W                         |
| R-134, 145<br>315                         | Resistor, Fixed, Comp.<br>15K ohm $\pm 10\%$ 1/4W    | R-309,<br>329, 434<br>436, 439 | Resistor, Fixed, Comp.<br>1K ohm $\pm 10\%$ 1/4W                           |
| R-136                                     | Resistor, Fixed, Comp.<br>33K ohm $\pm 10\%$ 1/4W    | R-312, 323<br>325              | Resistor, Fixed, Comp.<br>27K ohm $\pm 10\%$ 1/4W                          |
| R-138, 140<br>141,<br>311, 322            | Resistor, Fixed, Comp.<br>47 ohm $\pm 10\%$ 1/4W     | R-318, 435                     | Resistor, Fixed, Comp.<br>3.3K ohm $\pm 10\%$ 1/4W                         |
| R-139, 142<br>440                         | Resistor, Fixed, Comp.<br>150 ohm $\pm 10\%$ 1/4W    | R-326                          | Resistor, Fixed, Comp.<br>27 ohm $\pm 10\%$ 1/4W                           |
| R-143, 305<br>321                         | Resistor, Fixed, Comp.<br>5.6K ohm $\pm 10\%$ 1/4W   | R-327                          | Resistor, Fixed, Comp.<br>820 ohm $\pm 10\%$ 1/4W                          |
| R-144, 154<br>155, 306<br>316             | Resistor, Fixed, Comp.<br>150K ohm $\pm 10\%$ 1/4W   | R-330                          | Resistor, Fixed, Comp.<br>180 ohm $\pm 10\%$ 1/4W                          |
| R-146                                     | Resistor, Fixed, Comp.<br>680 ohm $\pm 10\%$ 1/4W    | R-401 thru<br>414              | Resistor, Fixed, Comp.<br>4.7K ohm $\pm 10\%$ 1/4W                         |
| R-147, 310<br>314                         | Resistor, Fixed, Comp.<br>100K ohm $\pm 10\%$ 1/4W   | R-432                          | Resistor, Fixed, Comp.<br>18 ohm $\pm 10\%$ 1/4W                           |
| R-148                                     | Resistor, Fixed, Comp.<br>39K ohm $\pm 10\%$ 1/4W    | R-101 thru 112,<br>437         | Resistor, Fixed, Comp.<br>1.5K ohm $\pm 10\%$ 1/4W                         |
| R-149                                     | Resistor, Variable, 10K ohm<br>2322-410-433-07       | R-441                          | Resistor, Fixed, Comp.<br>100 ohm $\pm 10\%$ 1W                            |
| R-151                                     | Resistor, Fixed, Comp.<br>5.6Meg ohm $\pm 10\%$ 1/2W | R-501                          | Resistor, Variable, B-8833   |
| R-153                                     | Resistor, Fixed, Comp.<br>82K ohm $\pm 10\%$ 1/4W    | R-502                          | Resistor, Variable, B-9030   |
| R-156 thru<br>160                         | Resistor, Fixed, Comp.<br>15K $\pm 5\%$ 1/4W         | R-503                          | Resistor, Fixed, Comp.<br>10K OHM 10% 1/2W                                 |
| R-163, 429<br>431                         | Resistor, Fixed, Comp.<br>220 ohm $\pm 10\%$ 1/4W    | T-301, 302                     | Transformer, 10.7MHZ I.F.<br>No. KAC-6184A (Remove cap<br>from base)       |
|   |  | T-303, 401                     | Transformer, 10.7MHZ I.F.<br>No. 6184A                                     |
|   |  | T-304 thru<br>308              | Transformer, 455KHZ I.F.<br>No. YOC-15000A                                 |
|   |  | Y-301                          | Crystal 2nd I.F. 10.245MHZ<br>Tol. & Stability .001%<br>32PF HC-25u holder |





## REPLACEMENT PARTS LIST

|       |                              |
|-------|------------------------------|
| Y-101 | Crystal Transmit A-10870-6   |
| Y-102 | Crystal Transmit A-10870-16  |
| Y-103 | Crystal Transmit A-10870-14  |
| Y-104 | Crystal Transmit A-10870-22  |
| Y-105 | Crystal Transmit A-10870-26  |
| Y-106 | Crystal Transmit A-10870-28  |
| Y-107 | Crystal Transmit A-10870-68  |
| Y-108 | Crystal Transmit A-10870-70  |
|       |                              |
| Y-401 | Crystal Receive A-10871-6    |
| Y-402 | Crystal Receive A-10871-16   |
| Y-403 | Crystal Receive A-10871-14   |
| Y-404 | Crystal Receive A-10871-22   |
| Y-405 | Crystal receive A-10871-26   |
| Y-406 | Crystal Receive A-10871-28   |
| Y-407 | Crystal Receive A-10871-68   |
| Y-408 | Crystal Receive A-10871-70   |
| Y-413 | Crystal Receive A-10871-W-1  |
| Y-414 | Crystal Receive A-10871 -W-2 |

